

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

APPLICANT: HANK KLEBAN

SERIAL NUMBER: 09/800,871

FILING DATE: 3/7/01

INVENTION: EQUAL RESPONS AXLE

Examiner: Fleming, F.

Art Group: 3616

PETITION FOR REVIVAL OF
APPLICATION ABANDONED
THROUGH PATENT OFFICE ERROR

HON. COMMISSIONER
OF PATENTS & TRADEMARKS
Washington, D.C. 20231

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MAR 06 2003
GROUP 3600

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MAR 05 2003
OFFICE OF PETITIONS

#7
Pet to w/d
abd
DW
RECEIVED
MAR 12 2003
GROUP 3600

Dear Sir:

This is in response to the telephone communication of February 27, 2003 from Examiner Paul Dickson and in further response to the Notice of Abandonment dated February 21, 2003.

Applicant states the following:

1. Applicant timely filed a reply to the Office Action of July 16, 2002 (EXHIBIT 1)
2. The reply was telefaxed to the Examiner directly at 703-746-3614 (EXHIBIT 2) on August 13, 2002.
3. Applicant contacted the Examiner on January 27, 2003 and requested a status. Examiner advised that drawings were fine as amended on August 13, 2002 and a substitute specification would have to be submitted.
4. On January 27, 2003, in reply to Examiner's request, applicant communicated with the Examiner via e-mail (EXHIBIT 3) forwarding:
 - a) E-mail cover letters
 - b) Substitute specifications; and
 - c) Drawings as submitted on August 13, 2002.

5. On January 27, 2003, Examiner contacted applicant and indicated that she could not view the attachments that were sent via e-mail and requested that the documents be submitted via telefax. **EXHIBIT 4.**
6. On January 29, 2003, Examiner contacted applicant and indicated that the documents e-mailed and subsequently telefaxed on January 27, 2003 would have to be resubmitted again since they lack a signature.
7. On January 29, 2003, applicant telefaxed the following documents (**EXHIBIT 5**) per the Examiner's request:
 - a) Fax cover letter;
 - b) Substitute specifications; and
 - c) Signed document
8. Applicant respectfully requests that any petition fee be waived since the abandonment was due solely to Patent Office error.

SUMMARY

Since a reply was timely filed and the application was unintentionally abandoned through no fault of the applicant, reconsideration and allowance of this application is respectfully requested.

Respectfully submitted,



RICHARD A. JOEL
Attorney for Applicant
496 Kinderkamack Road
Oradell, NJ 07649
(201) 599-0588
Reg. No. 22212

DATED: February 27, 2003

C:\WINDOWS\Profiles\Nancy\my documents\patents\Oa\kleban\petition.doc

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MAR 05 2003

OFFICE OF PETITIONS

EXHIBIT 1



FIG. 1

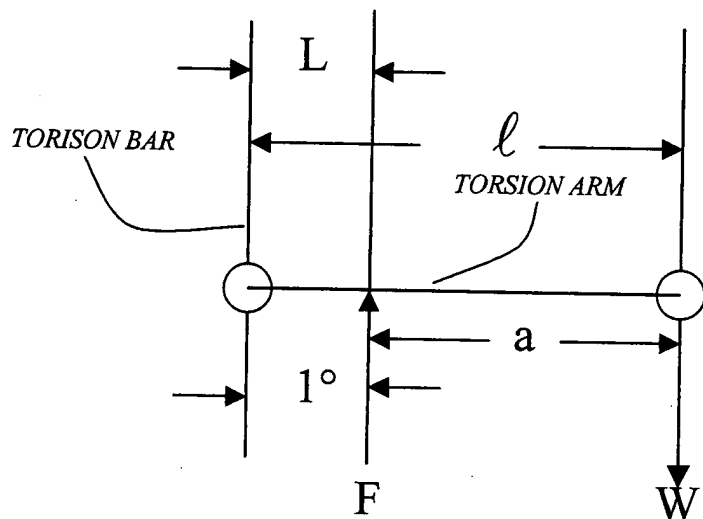
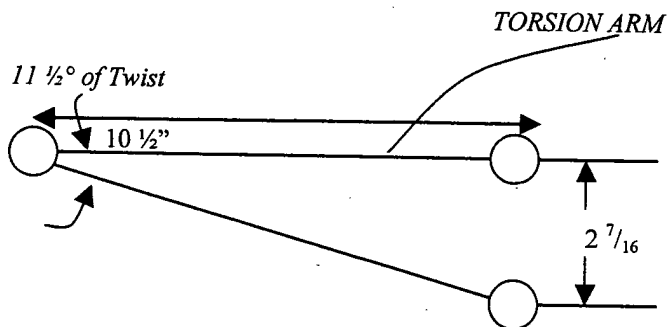


FIG. 2



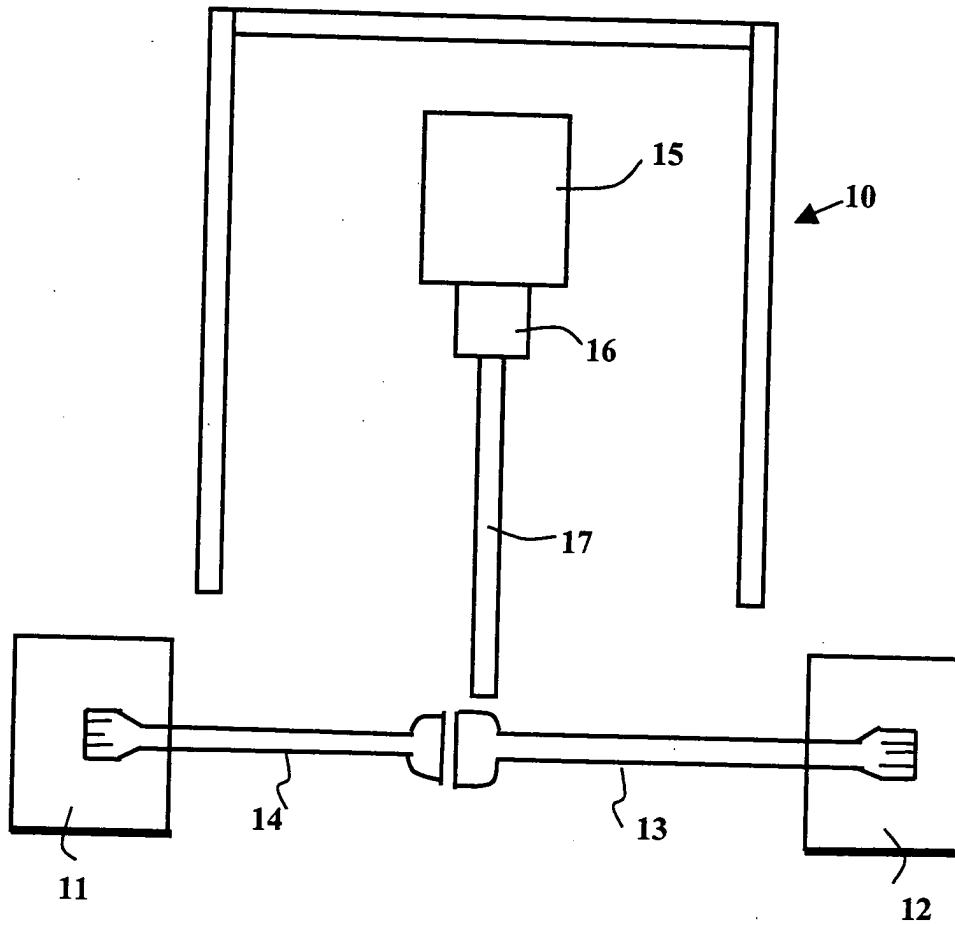


FIG. 3

EXHIBIT 2

TX TOTAL PAGES 8412
RX TOTAL PAGES 3152

PRINT TIME 08/13 '02 PM 12:22 ID:JOEL JOEL

FAX:2015990179

2CA2SAA01089 US A

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	08/12 P01:51	RX	2012617978	0	1	00'30"	OK-S
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900	08/13 A11:40	TX	2013431663	1	1	00'49"	OK-S
	08/13 A11:42	RX	FAX 5	0	1	00'44"	OK-S
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	08/13 A11:48	RX	412 768 3497	0	2	00'37"	OK-S
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901	08/13 A11:56	TX	MANUAL 2012623565	0	2	01'01"	OK-B
902	08/13 P12:07	TX	MANUAL 2013431663	0	1	00'58"	OK-C
	08/13 P12:13	RX		0	26	07'47"	OK-S

KLEBAN



Drawings

Fax

To: EXAMINER FLEMMING From: RICHARD A. JOEL, ESQ. (Reg. No. 22212)

Fax: 703-746-3614 Pages: 3

Phone: Date: 8/13/02

Re: SN: 09/800,817 (EQUAL
RESPONSE AXLE)

Attorney Docket No. P01-132-KLE

☐ Urgent ☒ For Review ☒ Please Comment ☒ Please Reply ☐ Please Recycle

● Comments:

Per your conversation with Nancy Rispoli of my office, I am submitting corrected drawings in reply to your communication of July 16, 2002. If the corrected drawings are acceptable, please advise and formal drawings will be filed accordingly. Thank you.

FIG. 1

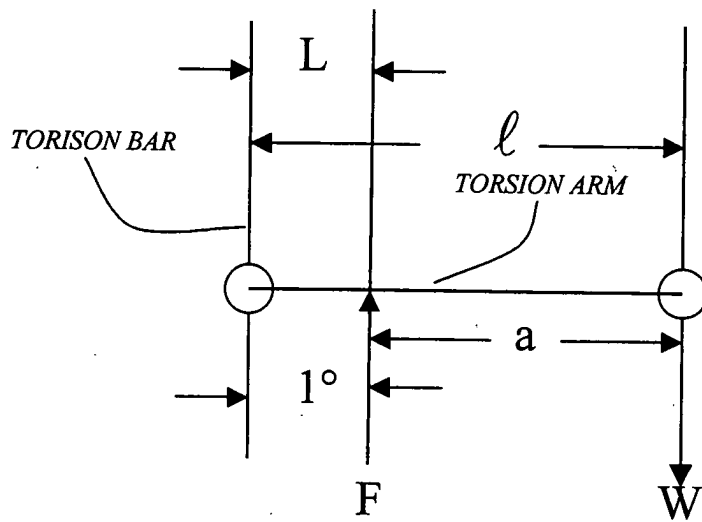
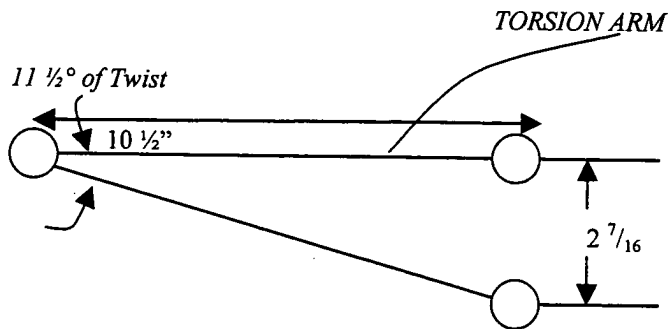


FIG. 2



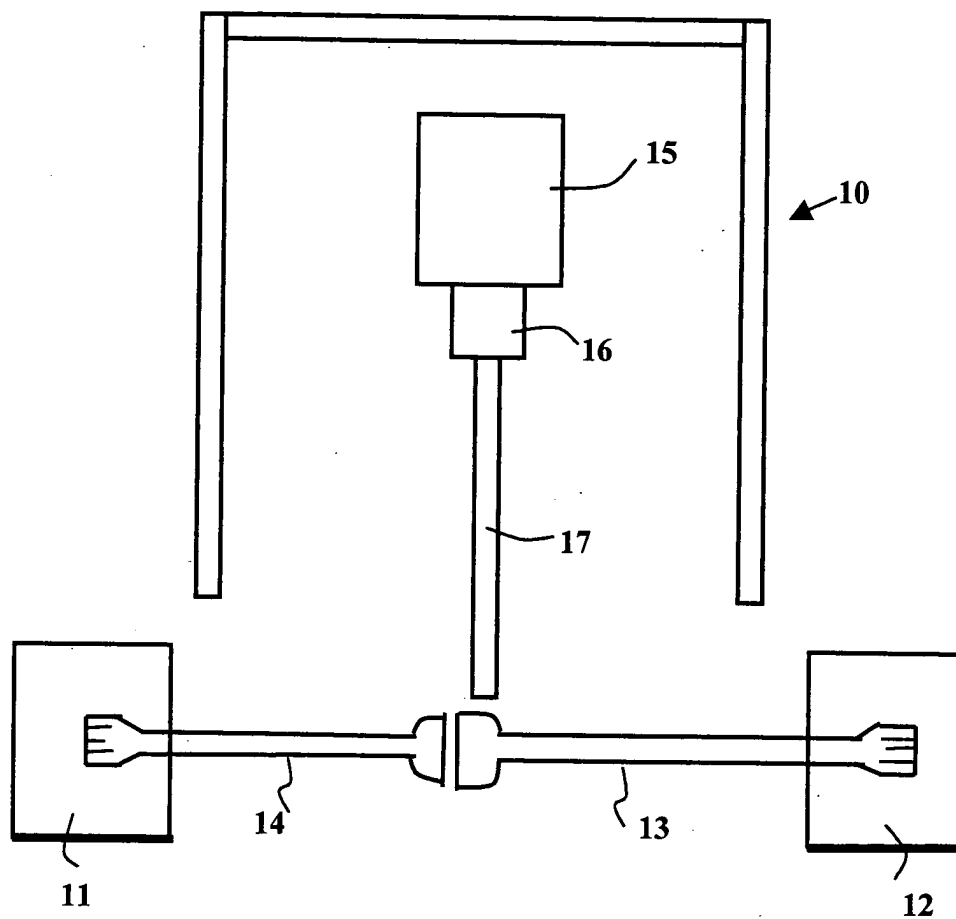


FIG. 3

EXHIBIT 3

Richard Joel Sr

From: "Richard Joel Sr" <rjoelsr@worldnet.att.net>
To: <faye.fleming@uspto.gov>
Sent: Monday, January 27, 2003 4:01 PM
Attach: fig3 (09.800,871).doc; figs1-2 (09.800,871).doc; substitute spec.doc
Subject: SN: 09/800,871

Dear Examiner Fleming:

Attached please find substitute specification and drawings with regard to the above.

Please note that spec and drawings are in MS WORD format.

If anything further is required, please contact my office.

Very truly yours,

NANCY RISPOLI for
RICHARD A. JOEL
Attorney for Applicant
Reg. # 22212

rjoelsr@att.net

IN RE APPLICATION OF:

Applicant: **HANK KLEBAN**
Serial Number: **09/800,871**
Filing Date: **3/7/2001**
Invention: **EQUAL RESPONSE AXLE**

1/27/03

SUBSTITUTE SPEC--09/800,871
EQUAL RESPONSE AXLE

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects and advantages of this invention may be more clearly seen when viewed in conjunction with the accompanying drawings wherein:

FIG. 1 is a representation of the dimensions employed in Step 2 of the detailed description;

FIG. 2 is a diagrammatic view of the elements of Step 5 in the detailed description, and;

FIG. 3 is a schematic top view of a vehicle with the unique axles.

DETAILED DESCRIPTION OF THE INVENTION

This invention relates to equal response axles for vehicles 10 having a front engine 15 and a rear wheel drive (non-independent suspension) and is particularly suited for use on racing cars. The invention involves a method and design for equalizing the torque at the tire contact patch. The engine 15 is connected through a transmission 16 to a drive shaft 17 which drive the axels 13 and 14.

Accordingly, the right and left axles 13 and 14 are machined to different dimensions based on a formula for calculating spring rates (tortional stiffness) of torsion bars. Basically, the calculation uses the static loaded radius (dimension from center of axle to ground) using either static or dynamic weight on the tire (portion of tire flat on the ground).

In Step 1, the polar moment of inertia (1) for a tubular bar is calculated as follows:

STEP 1

Solid Bar

$$J = \frac{\pi D^4}{32}$$

Tubular Bar

$$J = \frac{\pi (D_1^4 - D_2^4)}{32}$$

where J=Polar moment of inertia
D=Diameter of bar

D₁=outer diameter
D₂=inner diameter

In Step 2, reference should be made to FIG. 1 for the various parameters.

STEP 2

$$F = \frac{W \times L}{L}$$

where F=T

F=force

T=torque

STEP 3

$$\theta = \frac{T \times L}{G \times J}$$

where w=a select weight

F=force in pounds

T=torque in pounds

J=polar moment

G=modules of elasticity in shear (PSI)

L=working length of bar

Note:

(1) For W use 500 pounds for 1 inch or larger bars

(2) Use 10,750,000 for G with 4140 steel

(3) Answer will be in radians

STEP 4

Multiply the answer in Step 3 by 57.3=Degrees of twist

Refer to FIG. 2 for an understanding of Step 5

STEP 5

(a) Draw a line using torsion arm length.

(b) Draw a second line of the same length representing degrees of twist.

(c) Divide the load by the distance.

STEP 6

Divide the load by the distance

$$\text{Load}=W=500$$

$$\text{Distance}=2 \frac{7}{16}$$

$$\frac{L=500}{D}=205 \text{ inch pounds}$$

$$D \ 2 \frac{7}{16}$$

Using the above formula to dimension the rear axles on high performance or racing cars overcomes the problems associated with an unequal response as torque is delivered unequally to the rear wheels 11 and 12. The problems are caused by the instantaneous weight transfer to the left rear wheel 11 and the fact that the right side axle 13 is longer than the left side 14, yet both conventionally have the same diameter in the effective length of the axle. The fact that the left side axle 14 is shorter with the same diameter means that the left rear wheel 11 will lose traction first under hard acceleration because the shorter axle 14 has a high spring rate (torsionally stiffer), and the longer axle 13 will twist slightly before spinning the wheel 12. If the right and left axles 13 and 14 are machined to different dimensions determined by the foregoing formulas the problems are overcome. This invention uses the static loaded radius (dimension from center of axle to ground) using either straight static or curved dynamic weight on the tire.

If you are going through a left hand corner and the car has a slight under steer, a softer left rear axle 14 can fix this problem. Also, if you going through a right hand corner under power you must be much more careful not to spin out than if it was a left hand corner. There is a torque reaction that takes weight off the right rear wheel 12 and applies it to the left rear wheel 11. The weight transfer going through a right hand corner is also transferring weight to the left side wheels 11 together. This is loading up the left rear wheel 11 to the point where spinning out becomes all too easy. However, with the proposed "kera" axles, if you choose to replace the left rear axle 14 with a smaller diameter, (softer spring rate in twist), the instantaneous weight

transfer can be softened (absorbed) in the twisting action of the axle 14 which will result in more grip on the race track.

Applications particularly suited for the invention occur in oval track racing cars, open wheel cars, road racing cars, off road racing vehicles, high performance street cars, sport utility vehicles, pick-up trucks and commercial trucks and buses on all live axle rear wheel drive passenger cars.

In drag racing, the "kera" sized axle will allow more even distribution of power under acceleration. Axle sizing is an excellent way of tuning the chassis under acceleration. The "kera" sized axle also helps prevent breakage of drive train parts.

The general advantages for all road vehicles include:

- 1) Less wheel spin under acceleration;
- 2) More even application of torque to drive wheels (even wear);
- 3) Less breakage in drive train;
- 4) Better response under starting acceleration;
- 5) Better grip when applying power through corner;
- 6) More even deceleration;
- 7) Better drive wheel tire wear.

While the invention has been explained by a detailed description of certain specific embodiments, it is understood that various modifications and substitutions can be made in any of them within the scope of the appended claims, which are intended also to include equivalents of such embodiments.

FIG. 1

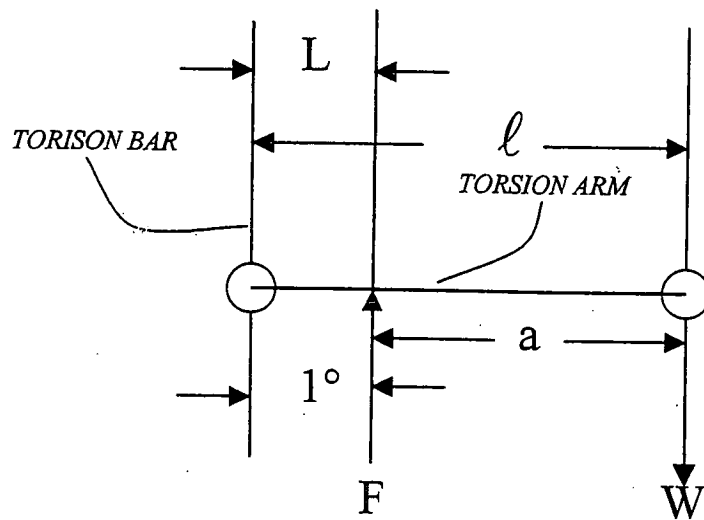
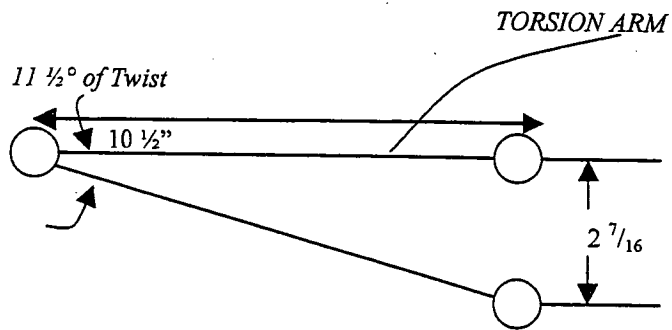


FIG. 2



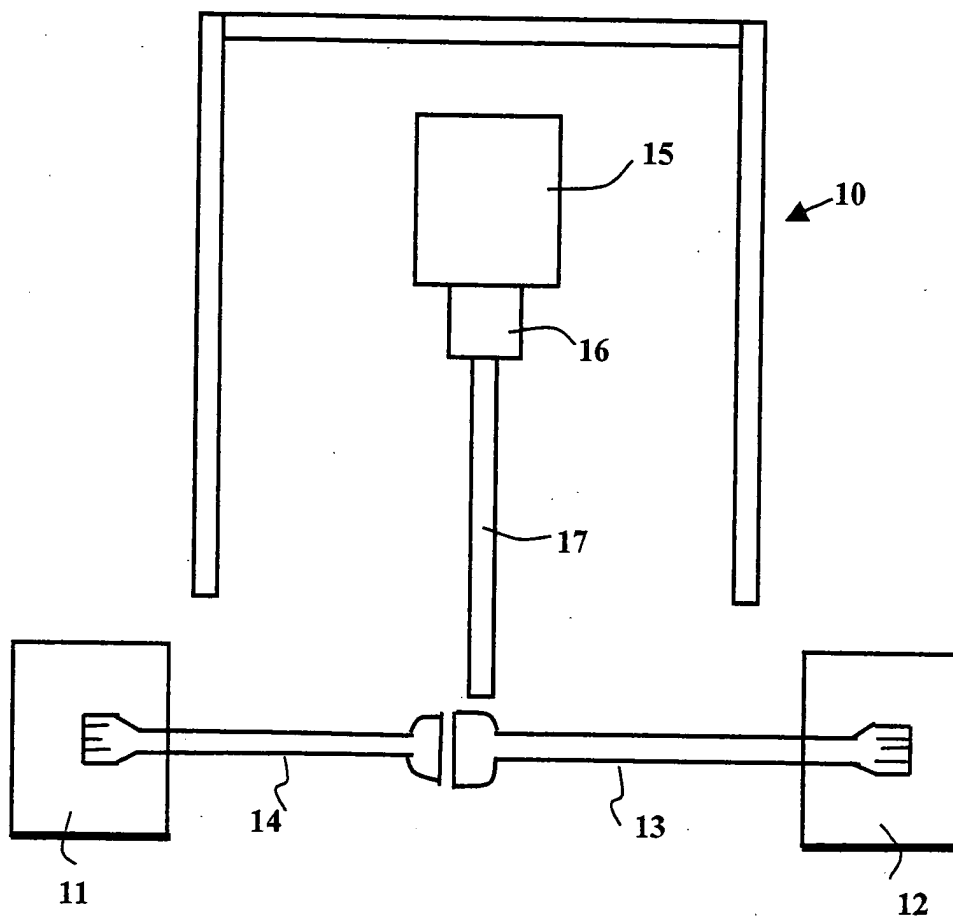


FIG. 3

Richard Joel Sr

From: "Richard Joel Sr" <rjoelsr@worldnet.att.net>
To: <faye.fleming@uspto.gov>
Sent: Monday, January 27, 2003 4:15 PM
Subject: 09/800,871

IN RE APPLICATION OF:

Applicant: HANK KLEBAN
Serial Number: 09/800,871
Filing Date: 3/7/2001
Invention: EQUAL RESPONSE AXLE

There is no new matter introduced in connection with the replacement drawings and specification that are clearly determinable from the drawings and specification previously submitted.

Very truly yours,

RICHARD A. JOEL
REG. # 22212

1/27/03

EXHIBIT 4

TX TOTAL PAGES 3758

RX TOTAL PAGES 8750

PRINT TIME 01/27 '03 PM 12:35 ID:JOEL JOEL

FAX:2015990179

2CA2SAA01089 US A

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321	01/27 A11:24	TX	17037463614	4	4	01'18"	OK-S
322	01/27 A11:37	TX	2013431663	1	1	00'26"	OK-S
	01/27 P12:13	RX	7328360028	0	2	00'36"	OK-S
323	01/27 P12:33	TX	17037463614	5	5	01'45"	OK-S

Fax

To: EXAMINER FLEMMING From: RICHARD A. JOEL, ESQ. (Reg. No. 22212)

Fax: 703-746-3614 Pages: 5

Phone: Date: 1/27/03

Re: SN: 09/800,817 (EQUAL
RESPONSE AXLE)
Attorney Docket No. P01-132-KLE

☐ Urgent ☒ For Review ☒ Please Comment ☒ Please Reply ☐ Please Recycle

● Comments:

Per your conversation with my office, I am submitting clean copy of spec. Thank you.

CLEAN COPY SPEC--09/800,871
EQUAL RESPONSE AXLE

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects and advantages of this invention may be more clearly seen when viewed in conjunction with the accompanying drawings wherein:

FIG. 1 is a representation of the dimensions employed in Step 2 of the detailed description;

FIG. 2 is a diagrammatic view of the elements of Step 5 in the detailed description, and;

FIG. 3 is a schematic top view of a vehicle with the unique axles.

DETAILED DESCRIPTION OF THE INVENTION

This invention relates to equal response axles for vehicles 10 having a front engine 15 and a rear wheel drive (non-independent suspension) and is particularly suited for use on racing cars. The invention involves a method and design for equalizing the torque at the tire contact patch. The engine 15 is connected through a transmission 16 to a drive shaft 17 which drive the axels 13 and 14.

Accordingly, the right and left axles 13 and 14 are machined to different dimensions based on a formula for calculating spring rates (torsional stiffness) of torsion bars. Basically, the calculation uses the static loaded radius (dimension from center of axle to ground) using either static or dynamic weight on the tire (portion of tire flat on the ground).

In Step 1, the polar moment of inertia (1) for a tubular bar is calculated as follows:

STEP 1

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where J=Polar moment of inertia
D=Diameter of bar

D₁=outer diameter
D₂=inner diameter

In Step 2, reference should be made to FIG. 1 for the various parameters.

STEP 2

$$F = \frac{W \times L}{L}$$

where F=T

F=force

T=torque

STEP 3

$$\theta = \frac{T \times L}{G \times J}$$

where w=a select weight

F=force in pounds

T=torque in pounds

J=polar moment

G=modules of elasticity in shear (PSI)

L=working length of bar

Note:

- (1) For W use 500 pounds for 1 inch or larger bars
- (2) Use 10,750,000 for G with 4140 steel
- (3) Answer will be in radians

STEP 4

Multiply the answer in Step 3 by 57.3=Degrees of twist

Refer to FIG. 2 for an understanding of Step 5

STEP 5

- (a) Draw a line using torsion arm length.
- (b) Draw a second line of the same length representing degrees of twist.
- (c) Divide the load by the distance.

STEP 6

Divide the load by the distance

$$\text{Load}=W=500$$

$$\text{Distance}=2 \frac{7}{16}$$

$$\frac{L=500}{D \ 2 \frac{7}{16}}=205 \text{ inch pounds}$$

$$D \ 2 \frac{7}{16}$$

Using the above formula to dimension the rear axles on high performance or racing cars overcomes the problems associated with an unequal response as torque is delivered unequally to the rear wheels 11 and 12. The problems are caused by the instantaneous weight transfer to the left rear wheel 11 and the fact that the right side axle 13 is longer than the left side 14, yet both conventionally have the same diameter in the effective length of the axle. The fact that the left side axle 14 is shorter with the same diameter means that the left rear wheel 11 will lose traction first under hard acceleration because the shorter axle 14 has a high spring rate (torsionally stiffer), and the longer axle 13 will twist slightly before spinning the wheel 12. If the right and left axles 13 and 14 are machined to different dimensions determined by the foregoing formulas the problems are overcome. This invention uses the static loaded radius (dimension from center of axle to ground) using either straight static or curved dynamic weight on the tire.

If you are going through a left hand corner and the car has a slight under steer, a softer left rear axle 14 can fix this problem. Also, if you going through a right hand corner under power you must be much more careful not to spin out than if it was a left hand corner. There is a torque reaction that takes weight off the right rear wheel 12 and applies it to the left rear wheel 11. The weight transfer going through a right hand corner is also transferring weight to the left side wheels 11 together. This is loading up the left rear wheel 11 to the point where spinning out becomes all too easy. However, with the proposed "kera" axles, if you choose to replace the left rear axle 14 with a smaller diameter, (softer spring rate in twist), the instantaneous weight

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- 3) Less breakage in drive train;
- 4) Better response under starting acceleration;
- 5) Better grip when applying power through corner;
- 6) More even deceleration;
- 7) Better drive wheel tire wear.

While the invention has been explained by a detailed description of certain specific embodiments, it is understood that various modifications and substitutions can be made in any of them within the scope of the appended claims, which are intended also to include equivalents of such embodiments.

EXHIBIT 5

Fax

To: EXAMINER FLEMMING From: NANCY RISPOLI for RICHARD A. JOEL,
ESQ. (Reg. No. 22212)

Fax: 703-746-3614 Pages: 6

Phone: Date: 1/29/03

Re: SN: 09/800,817 (EQUAL
RESPONSE AXLE)
Attorney Docket No. P01-132-KLE

☐ Urgent ☒ For Review ☒ Please Comment ☒ Please Reply ☐ Please Recycle

● Comments:

Per your conversation with my office, I am submitting marked up copy of spec along with signed document indicating that no new matter was introduced. Thank you.

MARKED UP SPEC--09/800,871
EQUAL RESPONSE AXLE

BRIEF DESCRIPTION OF THE DRAWINGS

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DETAILED DESCRIPTION OF THE INVENTION

This invention relates to equal response axles for vehicles 10 having a front engine 15 and a rear wheel drive (non-independent suspension) and is particularly suited for use on racing cars. The invention involves a method and design for equalizing the torque at the tire contact patch. The engine 15 is connected through a transmission 16 to a drive shaft 17 which drive the axels 13 and 14.

Accordingly, the right and left axles 13 and 14 are machined to different dimensions based on a formula for calculating spring rates (torsional stiffness) of torsion bars. Basically, the calculation uses the static loaded radius (dimension from center of axle to ground) using either static or dynamic weight on the tire (portion of tire flat on the ground).

In Step 1, the polar moment of inertia (1) for a tubular bar is calculated as follows:

STEP 1

Solid Bar

$$J = \frac{\pi D^4}{32}$$

Tubular Bar

$$J = \frac{\pi (D_1^4 - D_2^4)}{32}$$

where J=Polar moment of inertia
D=Diameter of bar

D₁=outer diameter
D₂=inner diameter

In Step 2, reference should be made to FIG. 1 for the various parameters.

STEP 2

$$F = \frac{W \times L}{L}$$

where F=T

F=force

T=torque

STEP 3

$$\theta = \frac{T \times L}{G \times J}$$

where w=a select weight

F=force in pounds

T=torque in pounds

J=polar moment

G=modules of elasticity in shear (PSI)

L=working length of bar

Note:

- (1) For W use 500 pounds for 1 inch or larger bars
- (2) Use 10,750,000 for G with 4140 steel
- (3) Answer will be in radians

STEP 4

Multiply the answer in Step 3 by 57.3=Degrees of twist

Refer to FIG. 2 for an understanding of Step 5

STEP 5

- (a) Draw a line using torsion arm length.
- (b) Draw a second line of the same length representing degrees of twist.
- (c) Divide the load by the distance.

STEP 6

Divide the load by the distance

$$\text{Load}=W=500$$

$$\text{Distance}=2 \frac{7}{16}$$

$$\frac{L=500}{D}=205 \text{ inch pounds}$$

$$D \ 2 \frac{7}{16}$$

Using the above formula to dimension the rear axles on high performance or racing cars overcomes the problems associated with an unequal response as torque is delivered unequally to the rear wheels 11 and 12. The problems are caused by the instantaneous weight transfer to the left rear wheel 11 and the fact that the right side axle 13 is longer than the left side 14, yet both conventionally have the same diameter in the effective length of the axle. The fact that the left side axle 14 is shorter with the same diameter means that the left rear wheel 11 will lose traction first under hard acceleration because the shorter axle 14 has a high spring rate (torsionally stiffer), and the longer axle 13 will twist slightly before spinning the wheel 12. If the right and left axles 13 and 14 are machined to different dimensions determined by the foregoing formulas the problems are overcome. This invention uses the static loaded radius (dimension from center of axle to ground) using either straight static or curved dynamic weight on the tire.

If you are going through a left hand corner and the car has a slight under steer, a softer left rear axle 14 can fix this problem. Also, if you going through a right hand corner under power you must be much more careful not to spin out than if it was a left hand corner. There is a torque reaction that takes weight off the right rear wheel 12 and applies it to the left rear wheel 11. The weight transfer going through a right hand corner is also transferring weight to the left side wheels 11 together. This is loading up the left rear wheel 11 to the point where spinning out becomes all too easy. However, with the proposed "kera" axles, if you choose to replace the left rear axle 14 with a smaller diameter, (softer spring rate in twist), the instantaneous weight

transfer can be softened (absorbed) in the twisting action of the axle 14 which will result in more grip on the race track.

Applications particularly suited for the invention occur in oval track racing cars, open wheel cars, road racing cars, off road racing vehicles, high performance street cars, sport utility vehicles, pick-up trucks and commercial trucks and buses on all live axle rear wheel drive passenger cars.

In drag racing, the "kera" sized axle will allow more even distribution of power under acceleration. Axle sizing is an excellent way of tuning the chassis under acceleration. The "kera" sized axle also helps prevent breakage of drive train parts.

The general advantages for all road vehicles include:

- 1) Less wheel spin under acceleration;
- 2) More even application of torque to drive wheels (even wear);
- 3) Less breakage in drive train;
- 4) Better response under starting acceleration;
- 5) Better grip when applying power through corner;
- 6) More even deceleration;
- 7) Better drive wheel tire wear.

While the invention has been explained by a detailed description of certain specific embodiments, it is understood that various modifications and substitutions can be made in any of them within the scope of the appended claims, which are intended also to include equivalents of such embodiments.

Richard Joel Sr

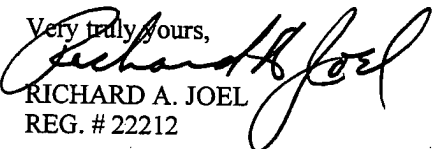
From: "Richard Joel Sr" <rjoelsr@worldnet.att.net>
To: <faye.fleming@uspto.gov>
Sent: Monday, January 27, 2003 4:15 PM
Subject: 09/800,871

IN RE APPLICATION OF:

Applicant: HANK KLEBAN
Serial Number: 09/800,871
Filing Date: 3/7/2001
Invention: EQUAL RESPONSE AXLE

There is no new matter introduced in connection with the replacement drawings and specification that are clearly determinable from the drawings and specification previously submitted.

Very truly yours,

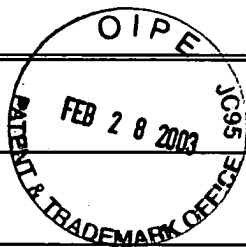

RICHARD A. JOEL
REG. # 22212

1/29/03

03-03-03

DAC

IN RE APPLICATION OF	
HANK KLEBAN	
SERIAL NUMBER	FILED
09/800,871	3/07/01
FOR	
EQUAL RESPONSE AXLE	
GRP. ART UNIT	EXAMINER
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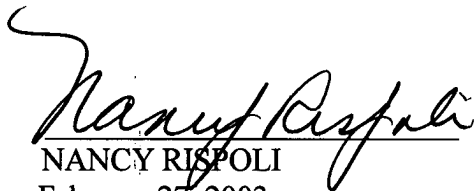
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CERTIFICATE OF MAILING

ATTORNEY DOCKET NO. P00-132-KLE

EF 318855405 US

I hereby certify that the **PETITION FOR REVIVAL OF APPLICATION ABANDONED THROUGH PATENT OFFICE ERROR** is being deposited with the United States Postal Services as "EXPRESS MAIL" in an envelope addressed to the **PATENT AND TRADE-MARK OFFICE, Washington, D.C. 20231** on February 27, 2003



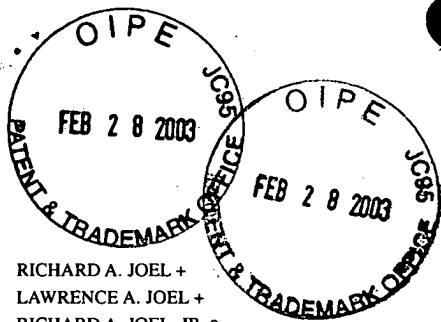
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Re: **Application: EQUAL RESPONSE AXLE**
Applicants: HANK KLEBAN
Attorney Docket No.: P00-132-KLE

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OFFICE OF PETITIONS

Dear Sir/Madam:

In response to the Notice of Abandonment dated February 21, 2003, please be advised that applicant did not abandon the above application. Please be further advised that a reply to the communication of July 16, 2002 was telefaxed to the Examiner directly at 703-746-3614 on August 13, 2002.

Applicant will rely on the following:

1. Fax cover letter dated August 13, 2002
2. Reply to communication of July 16, 2002 dated August 13, 2002 (drawings)
3. Telefax Transmission Report dated August 13, 2002
4. E-mail communications dated January 27, 2003 w/attachments;
5. Telefax communication dated January 27, 2003 w/attachments;
6. Telefax Transmission Report dated January 27, 2003; and
7. Telefax communication dated January 29, 2003, w/attachments.

In light of the above, I am enclosing a Petition for Revival of Application Abandoned through Patent Office Error. Since a reply was timely filed, reconsideration and allowance of this application is respectfully requested.

Kindly acknowledge receipt of the foregoing by stamping the enclosed self addressed stamped post-card and returning same to me.

Respectfully,


RICHARD A. JOEL

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Encls.